

WHAT IS CLAIMED IS

1. A hand-held electronic device having a device upper face, a device bottom face, and a device periphery between said upper face and said bottom face, comprising:

5 a carrier formed of insulative material and having upper and lower carrier faces;

a plurality of circuit components mounted on said carrier;

said carrier having a plurality of recesses with each of said plurality of electronic components lying in and fixed in position in one of said recesses;

10 said carrier having a thickness of at least 2 mm between said carrier faces, said carrier having a carrier side edge extending in a closed loop, and said carrier having an area within said side edge that occupies at least 75% of the entire area of said electronic device within said device periphery as seen in a plan view taken from above said device upper face.

2. The device described in claim 1 wherein:

said plurality of recesses include a plurality of edge recesses formed in said side edge of said carrier, said edge recesses being open at the side edge of the carrier.

3. The device described in claim 1 wherein:

when said circuit components are mounted in said carrier, said carrier with said circuit components occupies at least 90% of the entire area of the electronic device as seen in a plan view.

4. The device described in claim 1 including:

a first circuit board having a thickness less than half the thickness of said carrier;

5        said first circuit board having a first face that lies facewise adjacent to a face of said carrier, said circuit board having a plurality of conductive traces on said first face, and including a plurality of resilient sheet metal blades that connect a first of said components to said conductive traces, said blades being resiliently deflected by said first circuit board being moved facewise adjacent to said carrier.

5.        The device described in claim 4 including:

      a second circuit board with a second face that lies facewise adjacent to said carrier first face, said second circuit board having a plurality of conductive traces coupled to said components.

6.        The device described in claim 1 including:

      a first circuit board with a first face that lies facewise adjacent to a face of said carrier, said circuit board having a plurality of conductive traces on said first face, and at least a first plurality of said components each has a plurality of resilient sheet metal contacts with resilient tails that bear against said traces, said circuit board having a thickness less than half the thickness of said carrier.

7.        The device described in claim 1 wherein:

      said carrier has a card-passing slot for passing a smart card that has an active face with contact pads thereon, said card-passing slot extending from said side edge, said carrier having walls integral with the rest of said carrier and lying above and below said card-passing slot, to guide a card inserted into said slot;

      one of said recesses is a card connector-holding recess that extends from said upper carrier face and that intersects said card-passing slot;

10 a card connector lying in said card connector-holding recess, said card connector including a plurality of sheet metal contacts with deflectable pad-engaging ends positioned in horizontal alignment with said card-passing slot to be deflected by a card inserted through said card passing slot.

8. The device described in claim 1 wherein:  
a majority of said side edge of said carrier is metal plated.

9. A hand-held electronic device comprising:  
a carrier which is formed of a plate of insulative material, said carrier having first and second opposite carrier faces and a side edge;  
said carrier having a plurality of recesses;  
a plurality of circuit components each lying in one of said recesses and having resilient contact fingers projecting beyond said second face;  
a first circuit board which has first and second opposite board faces, said first circuit board having a smaller thickness than said carrier, said board first face lying adjacent to said second carrier face and said board first face having a plurality of conductive traces thereon, said contact fingers engaging said traces.

10. The device described in claim 9 wherein:  
said first and second carrier faces are respectively upper and lower faces;  
said carrier has a card-receiving slot extending into said side edge, and one of said recesses extends through the thickness of said carrier and intersects said card-receiving slot.

5 11. The device described in claim 9 wherein:  
a majority of said side edge of said carrier is coated with a metal plating.

12. The device described in claim 9 wherein:  
said carrier has a thickness of at least three millimeters between said first  
and second carrier faces.

13. A hand-held electronic device that includes an electronic circuit, and  
that has a periphery, comprising:

a carrier formed of a plate of insulative material having a thickness of at  
least 2 mm and having upper and lower faces, said carrier having about the same  
periphery as said electronic device, and said carrier having a plurality of recesses;

a plurality of circuit components of said electronic circuit each fixed in  
position in one of said recesses, each of said circuit components having a plurality  
of terminals;

a circuit board having a plurality of conductive traces and having a first face  
lying facewise adjacent to one of said carrier faces;

means for connecting said terminals of said circuit components to said  
traces, including deflected resilient contact blades.

14. The device described in claim 13 wherein:

said resilient contact blades are permanently fixed to said circuit  
components and resiliently press against said traces.